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Managing requirements for a US$1bn IT-based business transformation: New approaches and challenges

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Abstract

Managing uncertainty and complexity in IT based business transformation presents new requirements engineering (RE) challenges where requirements are not known up-front and business outcomes have to be delivered over time in dynamic alignment with market developments. Responding to these challenges necessitates new RE techniques that go beyond the traditional goals of *completeness*, *correctness* and *consistency* and focuses instead on business needs and IT alignment. Using the case of a major IT based business transformation in a large retail bank, this paper outlines new approaches being applied in practice and identifies areas for further RE research.

Keywords: IT alignment; Requirements engineering; Case study; Business needs

1. Introduction

Increasingly, delivering IT-based business transformation requires the staged delivery of business needs in a changing organisational and market environment. No longer can businesses support requirements-gathering over many months, even years. Indeed, such exercises are increasingly flawed because, in an uncertain business environment, not all requirements can be known up-front. Nor can businesses wait 3–5 years to start delivering benefits. Outcomes must align with a series of intermediate business needs, each contributing to the overall business strategy.

Requirements engineering (RE) techniques that focus on goals of *completeness, consistency* and *correctness* (Zave, 1997) are insufficient to address these new business challenges. Responding to these new challenges, requirements engineers are beginning to broaden their research agenda to focus on business needs and aligning IT.

As an industry practitioner with an academic interest, I am delighted to have had the opportunity to present the opening address at the recent REBNITA conference and to write this editorial. By sharing experiences and challenges from industry, I aim to reinforce the relevance and value of this new RE research. I commend the research contained in this special edition and the ongoing work conducted by this community of researchers.

This article first discusses two critical issues, uncertainty and complexity, drawn from organisation theory, challenging RE efforts in organisations. Second, it illustrates how these challenges are being addressed in industry using the example of a major IT-based transformation in a large retail bank. Finally, the article discusses how new RE techniques are needed, how they can be applied and some critical questions that will shape this new research.

2. A view from organisation theory

Information processing theory provides a framework for analysing and interpreting behaviour in organisations

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(Zack, 2004). The theory addresses the organisational problems of uncertainty and complexity, which makes it useful for examining RE challenges in IT-based business transformation.

'Uncertainty' represents having insufficient information to describe the existing or future state or the actions needed to achieve them (March, 1977; Raiffa, 1968). Organisations often experience uncertainty as the lack of sufficient information to make a decision or the inability to predict events upon which some decision depends (Galbraith, 1974; March and Simon, 1958).

When describing the challenge of managing uncertainty to colleagues, I often refer to a fictional conversation between an IT manager and business manager[3]:

IT Manager: What are your business needs over the next 3–5 years?
Business Manager: I don't know.
IT Manager (frustrated): But how can I build you the IT environment that is necessary to support your business?
Business Manager (frustrated): ***It depends*** *on my customers' needs and how the market unfolds.*

The key issue here is that '***it depends***'. Traditional RE techniques require IT and business managers to make a 'best guess' of the future customer needs and market environment. However, business managers understand that customer and market demands are not certain and they face incentives to include all potential requirements, which they do. The result is that IT and business managers have a large set of requirements. Such projects are over-scoped and will cost more than initially expected.

Managing uncertainty requires engineers to recognise that not all requirements can be known up-front, i.e. be *complete*. The challenge is then to deliver the known requirements whilst still leaving open the ability to deliver the future requirements as the market unfolds. Put more concisely, the challenge is how to minimise up-front business requirements but maximise future options.

Complexity is defined as a factor of both the number of parts and the nature of the inter-connections or interdependencies among them (Simon, 1962). Simon distinguishes between the interactions *among* modules and the interactions *within* modules. He argues for the criterion of decomposability in modular design, which he offers both as a prescription for human designers and as a description of the systems found in nature. Complexity reduction is achieved by minimising dependencies among the modules, which also reduces the probability that a failure in one module will cause failure in the whole system.

When applied to IT-based business transformation, the project management literature and practitioners propose that project delivery should be in small increments to reduce risk and to quickly demonstrate tangible results (see, for example, Kapur, 1999; Keen, 2000; Radosevich, 1999). The trend towards unbundling is apparent in such theoretical approaches as iterative development, rapid applications development, agile development and component-based development (Avison and Fitzgerald, 2003).

Despite extensive research in this area, and many new tools and methodologies, unbundling has proven difficult to achieve in practice. Newer methodologies rarely apply to larger projects, in part because of the large number of interdependencies, both technical and organisational, which then require the strong coordination mechanisms afforded by more traditional methods.

3. The 'CommSee' case

To illustrate how these challenges can be addressed, I will use the example of the Commonwealth Bank of Australia[4] (CBA), which has recently undertaken a US$1bn transformation program to achieve its vision 'To excel in customer service'. This transformation has been underpinned by a new customer management system, the Commonwealth Bank Service Excellence Everyday platform (CommSee). This supports a new service and sales program, simplified business processes and a new business model (Fig. 1).

3.1. Business needs

CBA's customers require the Bank to "know me", "give me what I want" and "do it reliably". These needs drive CommSee's key business requirements. CommSee is used across all customers and channels (points of interaction) with the Bank. It enables the staff to provide superior service by:

1. Providing a comprehensive single view of customers' holdings, accounts and relationships, so the bank can understand them and their business when they talk to a customer service officer.
2. Offering a more consistent experience by recording each interaction, so that the staff can continue with the next step at each customer contact.
3. Anticipating customers' needs by providing more services to match their financial situation with direct requests and referrals between channels and divisions.
4. Saving customers' time by electronically storing customer signatures, investment and home loan documents and data, so that they do not have to give the same information twice.
5. Following through on customer requests by allocating and scheduling tasks for completion now and in the future.

[3] With acknowledgement to CBA's head of Global Markets and CommSee Project Director, Dr John Beggs.

[4] Rated as one of the top 25 banks in the world by market capitalisation (Baker-Self et al., 2005).